NCDOT Experiences Implementing Its 2011 Traffic Noise Abatement Policy

TRB ADC40 SUMMER MEETING
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Traffic Noise Abatement Policy History

1990: Abatement Guidelines

"…to be used for all major highway projects"

1996: Noise Abatement Policy

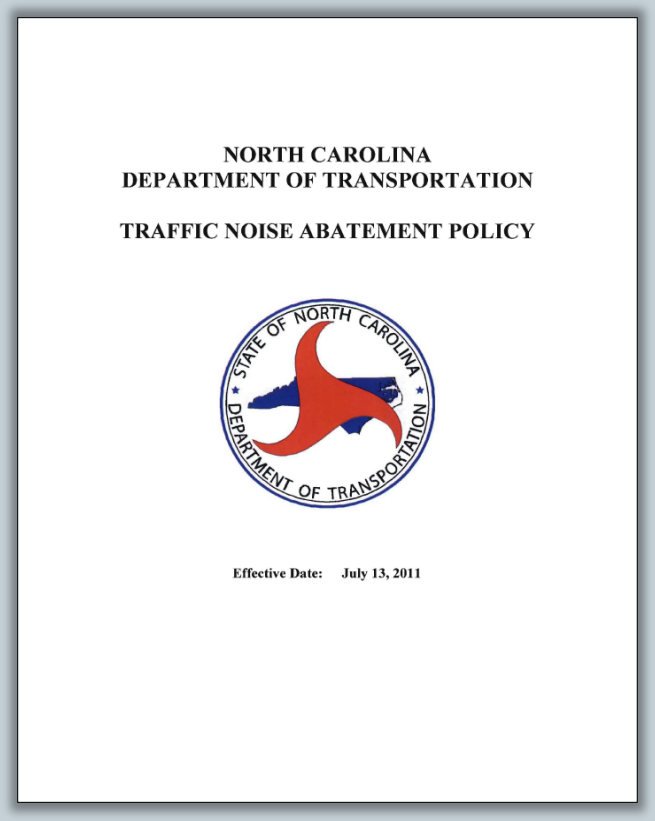
more formalized, Date of Public Knowledge

2004: Traffic Noise Abatement Policy

"Substantial Increase" scale

2011: Traffic Noise Abatement Policy

major changes



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TRAFFIC NOISE ABATEMENT POLICY

Effective Date: July 13, 2011

2011 Policy Revision Goals

1. Make providing traffic noise mitigation easier
2. Develop a guidance manual
3. Specifically address construction noise
4. Improve barrier aesthetics
5. Improve public involvement efforts

Opportunities/Benefits in Implementing 23 CFR 772

- Increased flexibility for state DOTs
  - States have leeway in determining abatement justification
- Definition of Type I projects more clearly defined
- New Activity Category F provides clarity in defining certain non-noise sensitive land uses
- Updated FHWA *Highway Traffic Noise: Analysis and Abatement Guidance* provides non-prescriptive and flexible guidance

Policy Changes

Old Policy (2004)	New Policy (2011)
• Used cost per "benefited receptor" in determining reasonableness	• Uses quantity per "benefited receptor" in determining reasonableness
• Allowed $35,000 per benefit + $500 per each average dB(A) increase for impacted receptors	• Allows 2,500 sq. ft. per benefit + 35 sq. ft. per each average dB(A) increase for impacted receptors

Policy Changes

Old Policy (2004)	New Policy (2011)
• No noise reduction design goal	• Requires minimum 7 dB(A) noise reduction for at least one benefited front row receptor

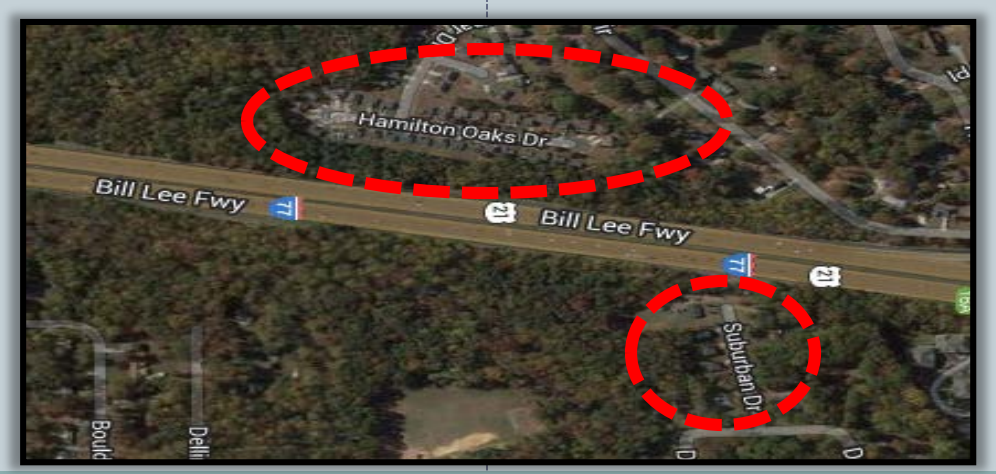
Policy Changes

Old Policy (2004)

- No provision for nearby neighborhoods to “share” abatement

New Policy (2011)

- Uses quantity averaging for receptors in a common noise environment



Policy Changes

Old Policy (2004)

- No guidance manual

New Policy (2011)

- First comprehensive guidance manual
- *"How To Do It"*
- General approach
- Detailed monitoring & modeling
- Reporting needs

Policy Changes

Old Policy (2004)

- Construction noise not addressed

New Policy (2011)

- Identify potential construction noise impacts and possible mitigation measures
- Cost/benefit considerations
- Incorporate into plans and specifications

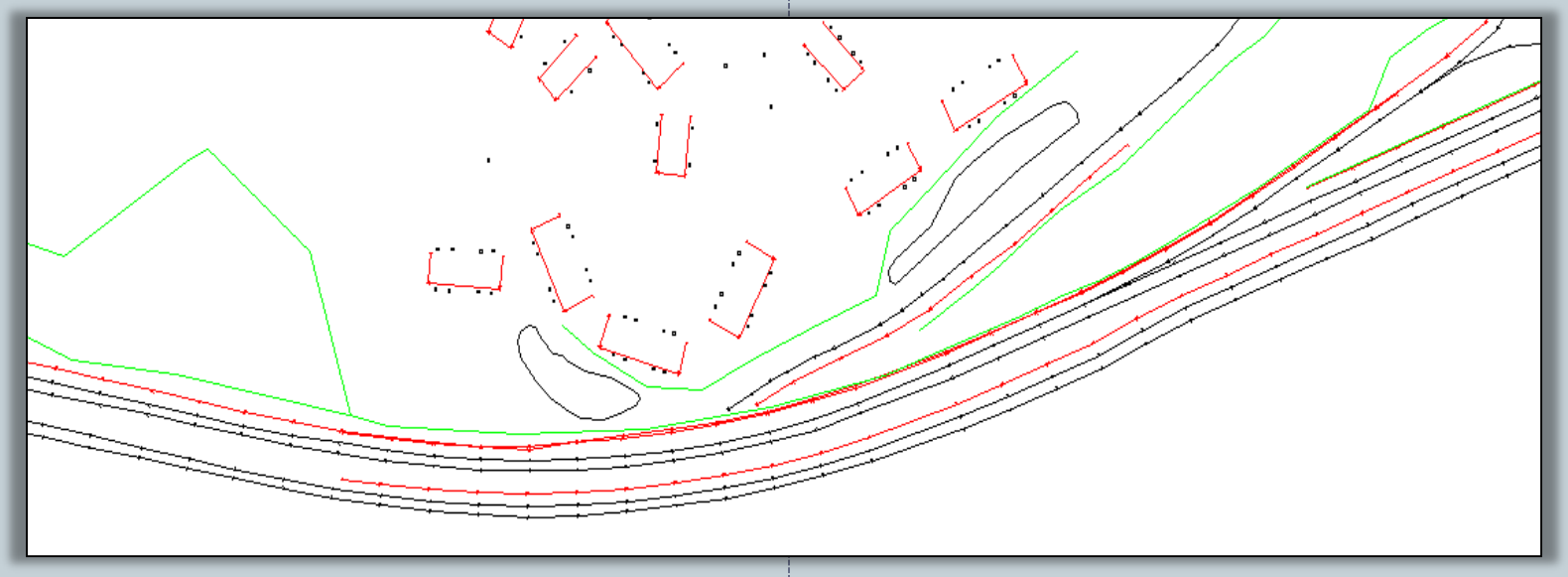
Policy Changes

Old Policy (2004)

- 3 dB(A) validation threshold

New Policy (2011)

- 1.7 dB(A) validation threshold



Policy Changes

Old Policy (2004)

- Emphasized steel pile and concrete panel as standard NCDOT noise wall. Limited focus on aesthetics.

New Policy (2011)

- Improved noise wall aesthetics
- Replace steel piles with concrete columns
- Offer optional textures and colors for noise wall panels
- Better integrate walls into surrounding environment
- Improve top-of-wall contours

Policy Changes

Original Wall

Revised Design

Intermediate Design

Policy Changes

Policy Changes

Old Policy (2004)

- Minimally included public involvement and coordination with local officials

New Policy (2011)

- Increased emphasis on public involvement
- Early and continual contacts with public to explain noise impacts and possible abatement measures
- Increase public awareness and minimize surprises
- Make it easier for people to get needed information

Policy Changes

Old Policy (2004)

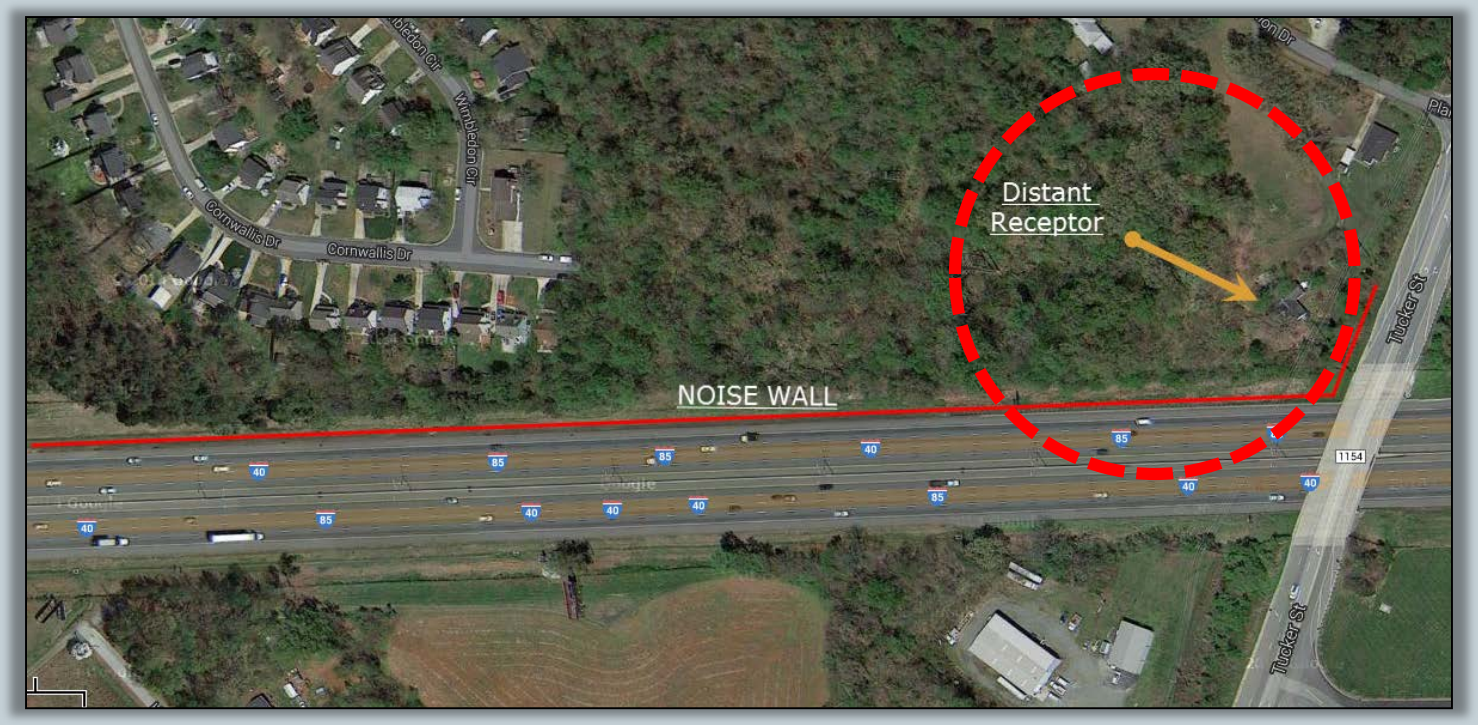
- Used simple majority vote by impacted front row receptors to determine abatement support

New Policy (2011)

- Provide designed abatement unless simple majority of eligible points for benefited owners and residents indicates wall is not preferred
  - Front Row Property Owners
  - (3 points/Ballot)
  - All Other Property Owners
  - (1 Point/Ballot)
  - All Residents
  - (1 Point/Ballot)

Challenges in Implementing Policy

- Reasonableness criteria can result in single, isolated receptors qualifying for abatement



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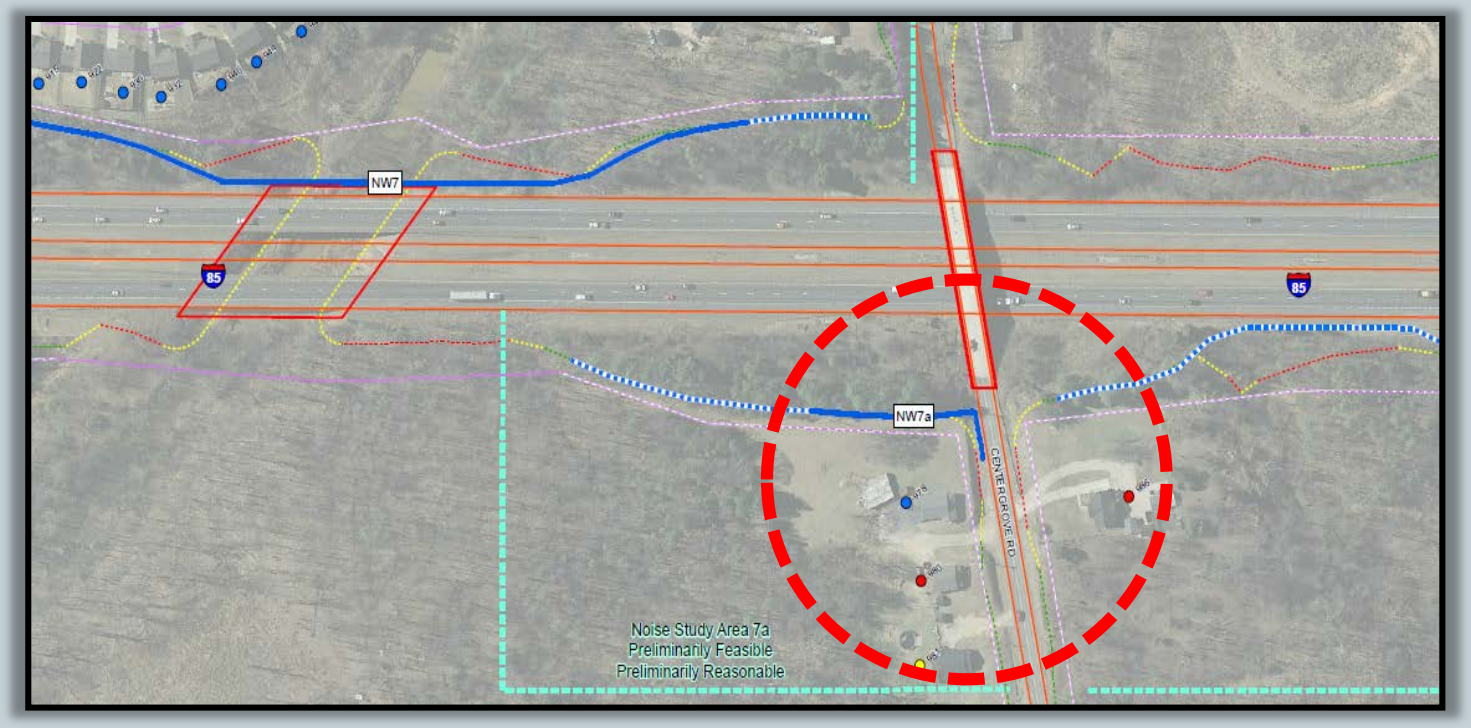

Challenges in Implementing Policy

- Soliciting ballots from tenants has been difficult
- Design-Build regulations are vague
- Definition of Type I project can result in noise abatement that is prohibitively expensive for relatively small projects

Challenges in Implementing Policy

Safety Enhancement Project

Challenges in Implementing Policy

NCDOT Traffic Noise Analysis Revealed

- 228 Total Receptors
- 69 Existing Noise Impacts (30%)
- 69 No-Build Noise Impacts (30%)
- 91 Build Noise Impacts (40%)
- 2 dB Average Noise Level Increase
- 3 dB Maximum Noise Level Increase

Challenges in Implementing Policy

Resulting Feasible & Reasonable Abatement

Challenges in Implementing Policy

Estimated Abatement Cost

- Project Construction = $1,015,000
- Total Wall Cost = $700,000

or

- 69% of Construction Cost

Challenges in Implementing Policy

Policy Review Provision

- Projects let for construction on or after July 13, 2011shall be reviewed under the criteria of this (2011) policy; however, the original date of public knowledge shall remain unchanged

- Intended to determine if new reasonableness criteria could justify abatement where old criteria could not

Future Policy Change Considerations

- Eliminate policy review provision
- Revise reasonableness criteria to address abatement for few, isolated receptors
- Revise base quantity considerations to address projects with minimal noise level increases (tiered approach)

Future Policy Change Considerations

- Revise balloting procedures
- Revise 1.7 dB(A) validation threshold to 3 dB(A)
- Guidance Manual revisions to address reporting and modeling requirements and strengthen public involvement considerations

NCDOT Experiences with 23 CFR 772

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